

Age-Related Reaction Time Delays Due to Active Inhibition of Neuronal Firing

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Introduction

Conventional wisdom holds that reaction time is slowed with age as a result of slower electrical conduction in nerve fibers and by the lengthening of axonal pathways in the brain. This reasoning is specious.

Abstract

Delayed neuronal firing associated with aging is the result of the presence of additional neuronal firing designed specifically to force neurons to delay their firing in order to support enhanced, multi-dimensional cognition. This author predicts that the true cause of this phenomenon is neurological and that rather than being a symptom of dysfunction, is a sign of neurological maturity.

Programmatically-delayed neuronal firing allows sub-regions of the brain to perform more thorough analyses prior to executive actions being implemented. This function may manifest itself through the depletion of charged ions from certain neurons by other neurons by applying a voltage drain (which, incidentally, requires an initial electrical impulse.) This phenomenon would work similarly to the way in which Parkinson's patients lose the ability to control muscles because of the presence of conflicting instructions to utilize muscles. Something similar could happen with neurons. If it does this would mean that delayed reaction times with age may be the byproduct of evolutionary forces which favor those who carefully consider decisions before carrying out actions and those who can suppress what are, in some cases, literally reflexive responses e.g. the way in which martial artists suppress their own instinct to duck or move backward when parrying a blow and preparing a counter-strike.

Conclusion

Study and proper understanding of this phenomenon could be of benefit to patients suffering from certain disorders associated with impulsivity and addiction.